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10/782,781	02/23/2004	Seiji Ogasawara	01272.020664	5485

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EXAMINER

UHLENHAKE, JASON S

ART UNIT PAPER NUMBER

2853

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,781

Applicant(s)

OGASAWARA, SEIJI

Examiner

Jason Uhlenhake

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1, 7, 8, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Otsuki (U.S. Pub. 2004/0207674).

Otsuki discloses:

- ***regarding claim 1 and claim 7***, ink jet printing apparatus comprising print medium conveying means for conveying a print medium, scanning means for moving a print head that ejects ink droplets along a main scanning direction crossing a direction which print medium is conveyed, print control means for controlling an operation performed by the print head to eject droplets (Paragraph 0007)
- ***regarding claim 1 and claim 7***, first printing control means for allowing formation of test patterns used to adjust landing positions of ink droplets in the main scanning direction, ink droplet ejected by the print head onto the print medium (Paragraph 0041)
- ***regarding claim 1 and claim 7***, second printing control means for controlling the operation performed by said print head to eject ink droplets in the main scanning direction on the basis of landing position adjustment values for the ink droplets determined on the basis of said test patterns (Paragraphs 0041, 0102, 0108, 0128 – 0129)

- **regarding claim 1 and claim 7**, wherein on the basis of a plurality of landing position adjustment values set in association with a plurality of areas in the conveying direction of the print medium, said second printing control means controls the operation of ejecting ink droplets in each area (Paragraph 0007)

- **regarding claim 8, and claim 10**, ink jet printing apparatus comprising conveying means for conveying printing medium along a conveying direction, scanning means for reciprocally moving a print head that ejects ink droplets along a main direction crossing the conveying direction, print control means to eject droplets while printing head is reciprocally moved by scanning means (Paragraph 0007)

- **regarding claim 8**, registration means for adjusting an ink ejecting timing from printing head in forward scanning and backward scanning according to an adjusting value; control means for controlling registration means to adjust the ink ejecting timing using the adjustment value corresponding to the position of the printing medium conveyed; wherein said control means controls said registration means so that the adjustment value is used to adjust the ink ejecting timing out of a plurality of adjustment values corresponding to the position of the printing medium (Paragraphs 0007, 0038, 0040, 0064)

- **regarding claim 10**, first adjusting step of ink ejecting timings in forward scanning and backward scanning of the printing head according to first adjusting value when printing medium is in a first position in the said conveying direction; second adjusting step of ink ejection timing in forward scanning and backward scanning of the printing head according to a second adjusting value different from the first adjusting

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value when printing medium is in a second position downstream of the first position (Paragraphs 0007, 0041, 0064).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuki (U.S. Pub. 2004/0207674) in view of Otsuki et al (U.S. Pat. 6,527,360).

Otsuki (674) discloses:

- ***regarding claim 2***, ink jet printing apparatus comprising print medium conveying means for conveying a print medium, scanning means for moving a print head that ejects ink droplets along a main scanning direction crossing a direction which print medium is conveyed, print control means for controlling an operation performed by the print head to eject droplets (Paragraph 0007)
- first printing control means for allowing formation of test patterns used to adjust landing positions of ink droplets in the main scanning direction, ink droplet ejected by the print head onto the print medium (Paragraph 0041)
- second printing control means for controlling the operation performed by said print head to eject ink droplets in the main scanning direction on the basis of

landing position adjustment values for the ink droplets determined on the basis of said test patterns (Paragraphs 0041, 0102, 0108, 0128 – 0129)

- **regarding claim 9**, control means to control registration means so as to use different adjusting values (Paragraphs 0041, 0064)

Otsuki (674) does not expressly disclose:

- **regarding claim 2**, print medium conveying means has at least a pair of rollers located upstream of an area printed by said print head

- before trailing edge of the print medium passes through conveying means, performs an ink ejecting operation on basis of adjustment values, and after a trailing edge of the print medium passes through said conveying means, a second adjustment value different from first adjustment value

- **regarding claim 4**, wherein the adjustment value depends on the type of print medium

- **regarding claim 9**, wherein conveying means has at least a pair of rollers which are placed at a portion upstream of recording position by the printing head in conveying direction, and use different adjustment values whether or not a trailing end of the printing medium depending on conveyed is in a position upstream of the pair of rollers or not

- **regarding claim 11**, wherein conveying means has a pair of rollers which are placed at a position upstream of a recording position by the print head in conveying direction, and first adjusting step is performed when a trailing end of the printing medium to be conveyed by a trailing end of the printing medium to be conveyed by the

conveying means is in a position upstream of the pair of rollers, second adjusting step is performed when a trailing end of the printing medium is in the downstream of the pair of rollers

Otsuki et al ('360) discloses:

- ***regarding claim 2***, print medium conveying means has at least a pair of rollers located upstream of an area printed by said print head (Column 10, Lines 35 – 50), for the purpose of properly conveying the print medium.
- before trailing edge of the print medium passes through conveying means, performs an ink ejecting operation on basis of adjustment values, and after a trailing edge of the print medium passes through said conveying means, a second adjustment value different from first adjustment value (Column 3, Lines 36 – 46; Column 12, Lines 16 - 37), for the purpose of accurately printing images on a print medium.
- ***regarding claim 4***, wherein the adjustment value depends on the type of print medium (Column 18, Lines 1 – 17; Lines 57 - 68; Column 19, Lines 1 – 10) , for the purpose of accurately printing images on a print medium.
- ***regarding claim 9***, wherein conveying means has at least a pair of rollers which are placed at a portion upstream of recording position by the printing head in conveying direction, and use different adjustment values whether or not a trailing end of the printing medium depending on conveyed is in a position upstream of the pair of rollers or not (Column 10, Lines 35 – 50; Column 3, Lines 36 – 46; Column 12, Lines 16 - 37) , for the purpose of accurately printing images on a print medium.

- ***regarding claim 11***, wherein conveying means has a pair of rollers which are placed at a position upstream of a recording position by the print head in conveying direction, and first adjusting step is performed when a trailing end of the printing medium to be conveyed by a trailing end of the printing medium to be conveyed by the conveying means is in a position upstream of the pair of rollers, second adjusting step is performed when a trailing end of the printing medium is in the downstream of the pair of rollers (Column 10, Lines 35 – 50; Column 3, Lines 36 – 46; Column 12, Lines 16 - 37), for the purpose of accurately printing images on a print medium.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teachings of print medium conveying means has at least a pair of rollers located upstream of an area printed by said print head; before trailing edge of the print medium passes through conveying means, performs an ink ejecting operation on basis of adjustment values, and after a trailing edge of the print medium passes through said conveying means, a second adjustment value different from first adjustment value; wherein the adjustment value depends on the type of print medium; wherein conveying means has at least a pair of rollers which are placed at a portion upstream of recording position by the printing head in conveying direction, and use different adjustment values whether or not a trailing end of the printing medium depending on conveyed is in a position upstream of the pair of rollers or not; wherein conveying means has a pair of rollers which are placed at a position upstream of a recording position by the print head in conveying direction, and first adjusting step is performed when a trailing end of the printing medium to be conveyed by a trailing end of

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the printing medium to be conveyed by the conveying means is in a position upstream of the pair of rollers, second adjusting step is performed when a trailing end of the printing medium is in the downstream of the pair of rollers as taught by Otsuki ('360) et al into the device of Otsuki ('674). The motivation for doing so would have been to properly convey the print medium and the purpose of accurately printing images on a print medium.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuki (U.S. Pub. 2004/0207674) in view of Otsuki et al (U.S. Pat. 6,527,360), and Kinas (U.S. Pub. 2002/0063871).

Otsuki ('674) discloses:

- ***regarding claim 3***, ink jet printing apparatus comprising print medium conveying means for conveying a print medium, scanning means for moving a print head that ejects ink droplets along a main scanning direction crossing a direction which print medium is conveyed, print control means for controlling an operation performed by the print head to eject droplets (Paragraph 0007)
 - first printing control means for allowing formation of test patterns used to adjust landing positions of ink droplets in the main scanning direction, ink droplet ejected by the print head onto the print medium (Paragraph 0041)
 - second printing control means for controlling the operation performed by said print head to eject ink droplets in the main scanning direction on the basis of

landing position adjustment values for the ink droplets determined on the basis of said test patterns (Paragraphs 0041, 0102, 0108, 0128 – 0129)

Otsuki ('674) does not expressly disclose:

- ***regarding claim 3***, print medium conveying means has at least a pair of rollers located upstream of an area printed by said print head
- before trailing edge of the print medium passes through conveying means, performs an ink ejecting operation on basis of adjustment values, and after a trailing edge of the print medium passes through said conveying means, a second adjustment value different from first adjustment value
- first printing control means allows to form a first test pattern before trailing edge of the print medium passes through print medium conveying means, and allows to form a second test pattern after the trailing edge of print medium has passed through said pair of rollers

Otsuki et al ('360) discloses:

- ***regarding claim 3***, print medium conveying means has at least a pair of rollers located upstream of an area printed by said print head (Column 10, Lines 35 – 50), for the purpose of properly conveying the print medium.
- before trailing edge of the print medium passes through conveying means, performs an ink ejecting operation on basis of adjustment values, and after a trailing edge of the print medium passes through said conveying means, a second adjustment value different from first adjustment value (Column 3, Lines 36 – 46; Column 12, Lines 16 - 37), for the purpose of accurately printing images on a print medium.

Kinas discloses:

- ***regarding claim 3***, first printing control means allows to form a first test pattern before trailing edge of the print medium passes through print medium conveying means, and allows to form a second test pattern after the trailing edge of print medium has passed through said pair of rollers (Figure 8; Paragraph 0055), for the purpose of identifying and correcting paper-positioning errors in an inkjet printer.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teachings of print medium conveying means has at least a pair of rollers located upstream of an area printed by said print head; before trailing edge of the print medium passes through conveying means, performs an ink ejecting operation on basis of adjustment values, and after a trailing edge of the print medium passes through said conveying means, a second adjustment value different from first adjustment value; and first printing control means allows to form a first test pattern before trailing edge of the print medium passes through print medium conveying means, and allows to form a second test pattern after the trailing edge of print medium has passed through said pair of rollers as taught by Otsuki et al ('360) and Kinas into the device of Otsuki ('674). The motivation for doing so would have been to properly convey the print medium, to accurately print images on a print medium, and to identify and correct paper-positioning errors in an inkjet printer.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuki (U.S. Pub. 2004/0207674) in view of Cheng et al (U.S. Pub. 2002/0196298).

Otsuki discloses:

- ***regarding claim 5***, ink jet printing apparatus comprising print medium conveying means for conveying a print medium, scanning means for moving a print head that ejects ink droplets along a main scanning direction crossing a direction which print medium is conveyed, print control means for controlling an operation performed by the print head to eject droplets (Paragraph 0007)
- acquiring means for acquiring landing position adjustment values used to adjust landing position of ink droplets in the main scanning direction for each scan of said print head, the ink droplets being ejected from said print head onto the print medium (Paragraphs 0007, 0041)
- wherein an operation performed by print head to eject ink droplets in the main scanning direction is controlled on the basis of the landing position adjustment values acquired by acquiring means (Paragraph 0007)

Otsuki does not disclose expressly:

- ***regarding claim 5***, detecting means for detecting a distance between print element arranged surface of print head and a surface of the print medium

Cheng et al discloses:

- ***regarding claim 5***, detecting means for detecting a distance between print element arranged surface of print head and a surface of the print medium (Abstract; Paragraph 0014), for the purpose of determining an adjusted ink ejection frequency.

At the time the invention was made, it would have been obvious for a person of ordinary skill in the art to incorporate the teaching of detecting means for detecting a distance between print element arranged surface of print head and a surface of the print medium as taught by Cheng et al into the device of Otsuki. The motivation for doing so would have been to determine an adjusted ink ejection frequency.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuki (U.S. Pub. 2004/0207674) in view of Yamada et al (U.S. Pat. 6,604,806).

Otsuki discloses:

- ***regarding claim 6,*** , ink jet printing apparatus comprising print medium conveying means for conveying a print medium, scanning means for moving a print head that ejects ink droplets along a main scanning direction crossing a direction which print medium is conveyed, print control means for controlling an operation performed by the print head to eject droplets (Paragraph 0007)
- acquiring means for acquiring landing position adjustment values used to adjust landing position of ink droplets in the main scanning direction for each scan of said print head, the ink droplets being ejected from said print head onto the print medium (Paragraphs 0007, 0041)
- wherein an operation performed by said print head to eject ink droplets in the main scanning direction is controlled on the basis of the landing position adjustment values acquired by said acquiring means (Paragraph 0007)

Otsuki does not disclose expressly:

- **regarding claim 6**, adjust landing positions for each scan of said print head in accordance with printing density in the conveying direction of said print medium

Yamada et al discloses:

- **regarding claim 6**, adjust landing positions for each scan of said print head in accordance with printing density in the conveying direction of said print medium (Column 4, Lines 17 – 26), for the purpose of obtaining the number of ink droplets required to be printed to obtain the required image resolution.

At the time the invention was made, it would have been obvious for a person of ordinary skill in the art to incorporate the teaching of adjust landing positions for each scan of said print head in accordance with printing density in the conveying direction of said print medium as taught by Yamada et al into the device of Otsuki. The motivation for doing so would have been to obtain the number of ink droplets required to print to obtain the required image resolution.

Response to Arguments

Applicant's arguments filed 5/21/2006 have been fully considered but they are not persuasive. Applicant argues that Otsuki does not disclose or suggest at least that on the basis of a plurality of landing position adjustment values set in association with a plurality of areas in a conveying direction of the print medium, controlling the operations of ejecting ink droplets in each area, with the landing position adjustment values determined on the basis of test patterns. Regarding claims 1, 5, and 7, Otsuki ('674) discloses a position adjustment value storage to store a plurality of position adjustment

values including a first positing adjustment value for the first bi-directional print mode and a second position adjustment value for the second bidirectional print mode on the basis of test patterns (Paragraphs 0007, 0041).

Applicant argues that Otsuki does not disclose or suggest that before a trailing edge passes through conveying means, an ink ejecting operation is performed on the basis of a first landing position adjustment value and after a trailing edge passes through the conveying means or rollers, on the basis of a second landing positing adjustment value. Regarding claims 2 and 3, Otsuki et al ('360) discloses that top and lower edges of a printing paper are printed differently, the nozzles used for the upper-edge routine (first landing position adjustment value) are disposed opposite the downstream slot and the nozzles used for the lower-edge routine (second landing position adjustment value) are disposed opposite the upstream slot (Column 3, Lines 36 – 46; Column 12, Lines 16 – 37).

Applicant argues that Otsuki does not disclose an operation performed by the print head to eject ink droplets is controlled on the basis of landing position adjustment values, with the landing position adjustment values being acquired in accordance with printing density in the conveying direction of the print medium. Regarding claim 6, Otsuki ('674) discloses the printing apparatus is controlled based on a position adjustment value storage that stores a position adjustment value for reducing misalignments (Paragraph 0007). Yamada et al discloses a correction process based on input density values in order to achieve an overall uniform print density of the printed image (Column 4, Lines 17 – 25).

Applicant argues that Otsuki does not disclose ink ejection timing using an adjustment value corresponding to a position of the printing medium and controlling the ink ejection timing out of a plurality of adjustment values corresponding to positions of the printing medium. Also that Otsuki does not disclose ink ejection timing in forward scanning and backward scanning of a print head to a first adjustment value when the medium is in a first position, and adjusting ejection timing in forward scanning and backward scanning according to a second adjusting value different from the first adjusting value when the medium is in a second position. Regarding claims 8 and 10, Otsuki ('674) discloses a position adjustment value storage that stores a position adjustment values for reducing misalignments between forward passes and backward passes and the ejection timing of the ink droplets is adjusted on forward and backward passes of main scanning so that the positions of ink droplets onto the printing medium are aligned (Paragraphs 0007, 0038, 0064).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

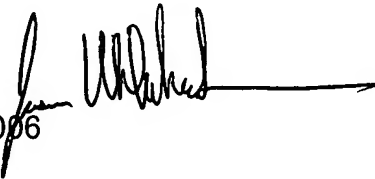
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Uhlenhake whose telephone number is (571) 272-5916. The examiner can normally be reached on Monday - Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JSU

July 3, 2006




K. FEGGINS
PRIMARY EXAMINER 7/06